of Boyan et al. (U.S. Patent No. 4,466,073). Claim 24 is rejected as being unpatentable over Biegesen et al. (U.S. Patent No. 4,330,363), Funai et al. in view of Ham et al. and Boyan et al. as applied to claim 20 above, and further in view of Gandhi, VLS Fabrication Principles, John Wiley and Sons, p. 388, 1983. These rejections are respectfully traversed.

Claims 1, 2, 4, 7, 11, 15, and 20 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 5 and 6 of U.S. Patent No. 6,180,439 B1. Claims 14, 18 and 23 were rejected as being unpatentable over claim 5 of U.S. Patent No. 6,180,439 B1. Claims 10, 19, and 25 were rejected as being unpatentable over claim 24 of U.S. Patent No. 6,180,439 B1. Claim 24 was rejected as being unpatentable over claim 25 of U.S. Patent No. 6,180,439 B1. Claims 3, 6, 9, 13, 17, and 22 were rejected as being unpatentable over claims 4 and 5 of U.S. Patent No. 6,180,439 B1 in view of Boyan et al. (U.S. Patent No. 4,466,073). Claims 5, 8, 12, 16, and 21 were rejected as being unpatentable over claims 4 and 5 of U.S. Patent No. 6,180,439 B1 in view of Funai et al. (U.S. Patent No. 5,550,070). These rejections are respectfully requested to be held in abeyance until issues related to prior art rejections are resolved and all claims are allowable.

The present invention is generally directed to a method for manufacturing a semiconductor device, comprising the steps of forming a semiconductor island having a tapered shape with an angle within a range of 20° to 50° between a side of the tapered shape and an underlying surface.

Applicants respectfully submit that it is significantly important to set the angle within a range of 20° to 50°. It is not preferable to set the angle to below 20° because an area occupied by an active layer increases and the difficulty in formation becomes serious. It is not also preferable to set the angle above 50° because the effect of suppressing the shape as shown in Fig. 7B of the present application from being formed is reduced. The description of the specification, from page 39, line 15 to page 40, line 17, provides detailed description for the semiconductor island having a tapered shape with an angle within a range of 20° to 50°.

With respect to the § 103 rejections, the Ham et al. reference was cited as a secondary reference providing a cure for the deficiency of all other cited references. In particular, the Ham et al. reference was cited as allegedly disclosing a semiconductor island with a tapered shape having an angle within a range of 20° to 50° between a side of a tapered shape and an underlying surface. The Office asserted that col. 3, lines 17-18 and reference to Figs. 1 and 2 in col. 1, lines 63-65 of Ham et al. provide for support of this claimed feature. However,

Applicants respectfully submit that none of the cited portions of Ham et al. teach or suggest an angle within a range of 20° to 50° between a side of a tapered shape and an underlying surface, as claimed in Applicants' independent claims 1, 4, 7, 11, 15, and 20.

Applicants note that the burden of establishing a prima facie case of obviousness under §103 lies with the Patent Office. In re Fine, 5 USPQ2d 1596 (Fed. Cir. 1988). To establish a prima facie case of obviousness, there must be (1) some suggestion or motivation (either in the references themselves or in the knowledge generally available to one of ordinary skill in the art) to modify the reference or to combine reference teachings to achieve the claimed invention and (2) the prior art must teach or suggest all the claim limitations. MPEP § 2143.

Ham et al. fails to suggest or disclose an angle within a range of 20° to 50° between a side of a tapered shape and an underlying surface to cure the deficiency of all other cited prior references. Therefore, the § 103 rejections of independent claims 1, 4, 7, 11, 15, and 20 and their respective dependent claims are insupportable. Accordingly, the § 103 rejections are respectfully requested to be reconsidered and withdrawn.

To not burden the record, Applicants are not providing arguments against the § 103 rejections of dependent claims but reserve the rights to address these rejections in the future, if necessary.

CONCLUSION

Having responded to all rejections set forth in the outstanding non-Final Office Action, it is submitted that claims 1-25 are now in condition for allowance. An early and favorable Notice of Allowance is respectfully solicited. In the event that the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, the Examiner is courteously requested to contact Applicants' undersigned representative.

Respectfully submitted,

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